

Service Manual

Mini Cassette

Voice Activated Mini Cassette Recorder
with Tape Speed Control

RQ-355
(Brown)



This is the Service Manual
for the following areas.

D ...For all European
areas except United
Kingdom.

N ...For Asia, Latin
America, Middle
East and Africa
areas.

A ...For Australia.

RQ-352 MECHANISM SERIES

Specifications

Power requirement:

Battery; 3V (Two R6 (UM-3) size dry batteries)

D ...AC; with optional AC adaptor RP-31

NA ...AC; with optional AC adaptor RP-34

Power output:

500mW...RMS (Max.)

Frequency range:

200-8,000Hz

Motor:

Electrical governor motor

Wow and flutter:

Less than 0.5 (RMS)

Tape speed:

4.8cm/s

Track system:

2-track monaural recording and playback

Fast forward and rewind time:

Approx. 140 sec. with C-60 cassette tape

Jacks:

Mic; sensitivity 0.25mV/applicable microphone

impedance 200Ω-600Ω

DC-in; 3V

Monitor; 8Ω

4.5cm

Speaker:

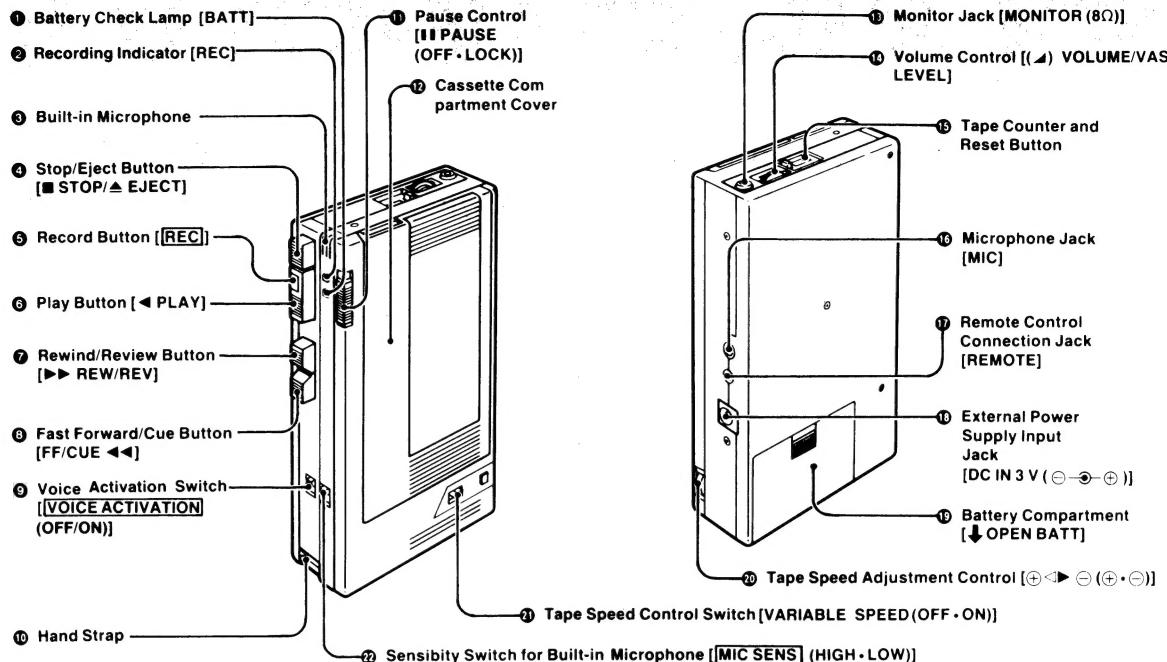
Dimensions: 85mm(W)×134mm(H)×33mm(D)

Dimensions:

Weight: 318g without batteries

Design and specifications are subject to change without notice.

LOCATION OF CONTROLS AND COMPONENTS



DISASSEMBLY INSTRUCTIONS

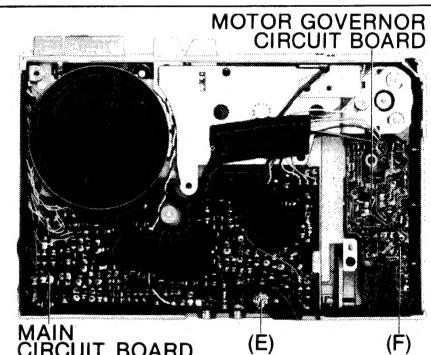
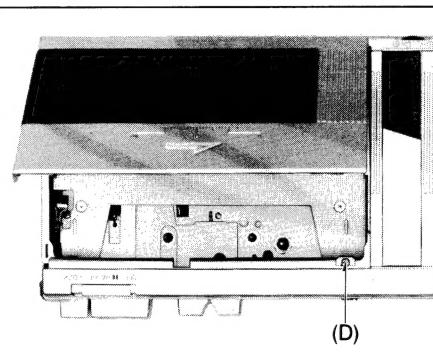
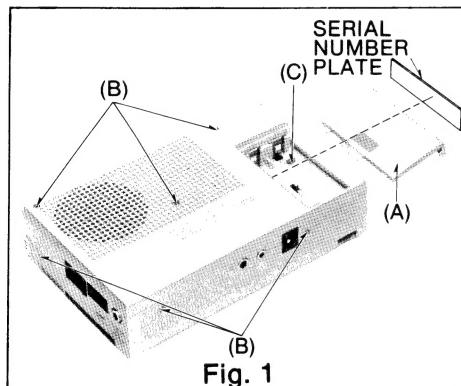


Fig. 1

Fig. 2

Fig. 3

Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
1	1	Bottom case assembly	<ul style="list-style-type: none"> • Battery lid • 6 screws • 1 black screw 	(A) (B) (C) 1
2	1 → 2	Main case assembly	<ul style="list-style-type: none"> • 1 screw 	(D) 2
3	1 → 2 → 3	Main circuit board and motor governor circuit board	<ul style="list-style-type: none"> • 1 screw • 1 red screw 	(E) (F) 3

PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

- When checking operation after removing the mechanism unit from the bottom case, the REW button (M64) should come off easily. Tighten it temporarily with a screw G9 (used to stop the bottom case) as shown in Fig. 1 and then check the operation.

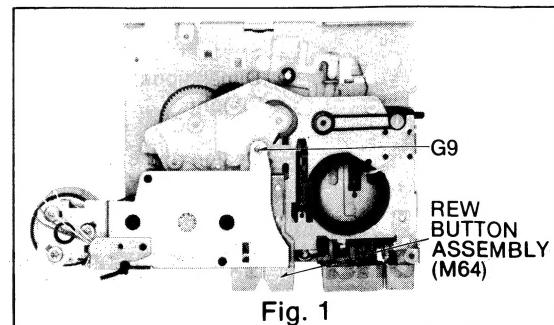


Fig. 1

• Removing the intermediate plate assembly (M60)

- Remove three black screws (A) first, then remove the lower plate assembly (M66) and switch angle (M9). Remove them while holding down the REW button assembly (M64) to prevent the FF/REW button spring (M21) from popping out. (Refer to Fig. 1, 2 and 3.)
- Remove the FF/REW button spring and the REW button.
- Remove the erase safety lever spring (M20) from the erase safety lever (M2). (Refer to Fig. 4.)
- Remove the flywheel assembly (M12). (Refer to Fig. 3).
- Remove five screws (B), the playback rod spring (M16), and counter belt (M79). The intermediate plate assembly can be removed from the mechanism unit.
- When assembling the intermediate plate assembly, assemble the cue lever (M8) parallel to the edge of the main base plate. Before securing it with screws, insert the erase safety lever spring. (Refer to Fig. 4.)

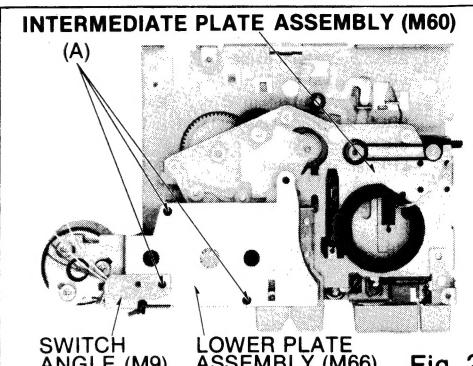


Fig. 2

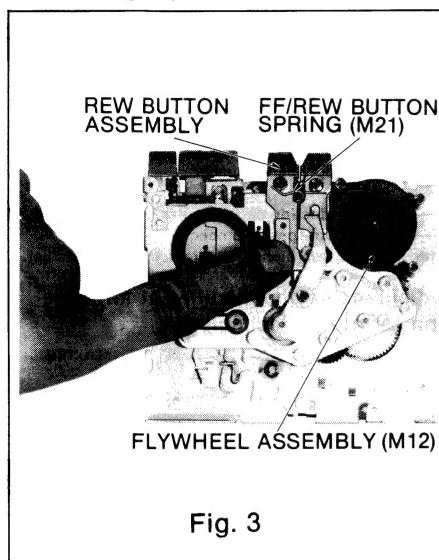


Fig. 3

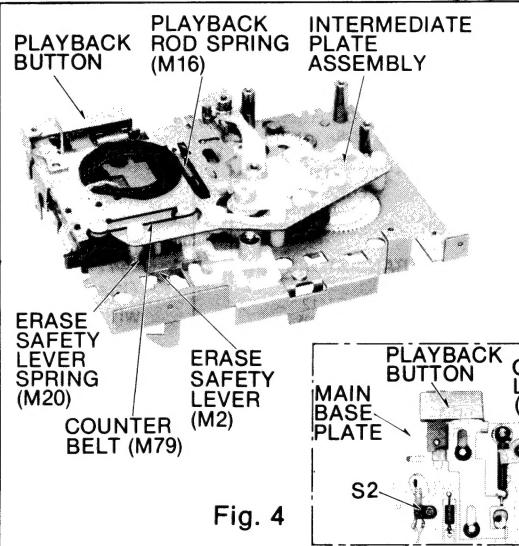


Fig. 4

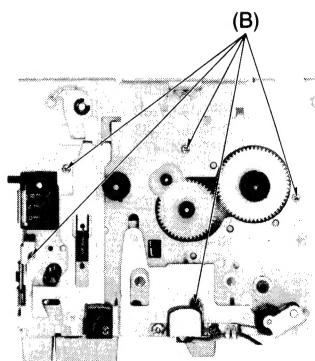


Fig. 5

MEASUREMENT AND ADJUSTMENT METHODS

NOTES: Keep good condition, set switch buttons and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$)
- Volume control: Set to 8.
- Speed control: OFF
- Voice operation: OFF

ITEM	MEASUREMENT & ADJUSTMENT
<p>A Tape speed accuracy adjustment</p> <p>Condition: * Playback mode</p> <p>Equipment: * Digital electronic counter or frequency counter * Test tape...QZZCWAT * Resistor (8Ω)</p>	<p>Tape speed accuracy</p> <ol style="list-style-type: none"> Test equipment connection is shown in fig. 1. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. Take measurement at middle section of test tape. Measure this frequency. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%) \quad \text{where, } f = \text{measured value}$ <p>Standard value: $\pm 2.5\%$ ($f = 2,925 - 3,075\text{ Hz}$)</p> <ol style="list-style-type: none"> If measured value is not within standard, adjust VR201 (shown in circuit boards and wiring connection diagram), so that frequency becomes 3,000Hz.
<p>B Adjusting the governor circuit (μ adjustment)</p> <p>Condition: * Playback mode</p>	<p>Checks after motor replacement</p> <ol style="list-style-type: none"> After replacing the motor, playback the test tape (QZZCWAT) and listen to the reproduced sound. If the sound vibrates or fluctuates, change the resistor (R202) to 1.5 ohms (ERD10TJ1R5). Playback the test tape (QZZCWAT) and check that the reproduced sound does not fluctuate.

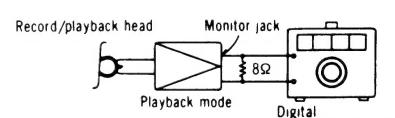


Fig. 1

ELECTRICAL PARTS LIST

• NOTES: RESISTORS	CAPACITORS
ERD.....Carbon	ECBACeramic
ERGMetal-oxide	ECG□Ceramic
ERS.....Metal-oxide	ECK□Ceramic
EROMetal-film	ECC□Ceramic
ERX.....Metal-film	ECF□Ceramic
ERQFuse type metallic	ECQMPolyester film
ERC.....Solid	ECQEPolyester film
ERFCement	ECQFPolypropylene
CHIP RESISTORS	ECE□Electrolytic
RRDCarbon	ECE□N ...Non polar electrolytic
CHIP CAPACITORS	ECQSPolystyrene
QCU□.....Ceramic	ECS□Tantalum
	QCSTantalum

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.
RESISTORS					
R 2	RRD18XJ222	C 1	ECEA1HKR22	C 31	ECEA0GKS101
R 3	RRD18XJ682	C 2	QCUT1H101MRL	C 32	ECEA0GKS470
R 4	RRD18XJ472	C 3	QCUT1H222MRL	C 33	QCU1TH101MRL
R 5	RRD18XJ102	C 4	QCUT1H392MRL	C 34	ECEA0GK330
R 7	RRD18XJ123	C 5	ECSF1CD224	C 35	ECEA0GKS221
R 8	RRD18XJ472	C 6	ECEA1HKS010	C 36	ECEA1HK010
R 9	RRD18XJ103	C 7	ECEA0GKS470	C 37	ECEA1HKS47
R 10	RRD18XJ102	C 8	QCUT1H472MRL	C 38	QCUT1H333MRL
R 11	RRD18XJ103	C 9	ECEA0GKS221	C 39	ECEA0GKS470
R 12	RRD18XJ471	C 10	ECEA0GKS101	C 40	QCUT1H472MRL
R 13	RRD18XJ184	C 11, 12	ECEA1HKS010	C 201	ECEA1EK47
R 14	RRD18XJ472	C 13	ECEA1HKS22		
R 15	RRD18XJ474	C 14	ECEA1HKS010		
R 16	RRD18XJ223	C 15	ECEA0GKS470		
R 17	RRD18XJ562	C 16	QCUT1H223MRL		
R 18	RRD18XJ271	C 17	ECSF1CD224		
R 19	RRD18XJ560	C 18	ECEA1HKS22		
R 20	RRD18XJ103	C 19	ECSF1CD224		
R 21	RRD18XJ222	C 20	QCUT1H102MRL		
R 22	RRD18XJ100	C 21	ECEA0GKS221		
R 23, 24	RRD18XJ561	C 22	ECEA1HKR22		
R 25	RRD18XJ182	C 23	ECEA0GKS330		
R 27	RRD18XJ470	C 24, 25	ECEA1HK22		
R 28	RRD18XJ821	C 26, 27	ECEA1EK47		
R 29, 30	RRD18XJ82	C 28	QCUV1E104Z		
R 31	RRD18XJ102	C 29	QCUT1H222MRL		
R 32	RRD18XJ390	C 30	QCUT1H103MRL		
R 33	RRD18XJ224				
R 34	RRD18XJ103				
R 35	RRD18XJ184				
R 36	RRD18XJ274				
R 37	RRD18XJ563				
R 38	RRD18XJ272				
R 39, 40	RRD18XJ221				
R 41	RRD18XJ561				
R 42	RRD18XJ330				
R 201	ERSB39JR30				
R 202	ERD10TJ2R2				
(Adjustable)	ERD10TJ1R5				
R 203	ERSB20J752				
R 204	ERD10TJ102				
R 205	ERD10TJ272				
CHIP JUMPERS					
JP 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	RRD18XK000				
VARIABLE RESISTORS					
VR 1	EVLEAAT12A14 (with Screw)				
VR 2	QVLCAA00B5 (with Speed Control Knob)				
VR 201	EVNB3A00B32				

Ref. No.	Part No.	Part Name & Description
SWITCHES		
S 1	QSS6225	Slide Switch (Record/ Playback Selector)
S 2	QSB0302	Leaf Switch (Power ON/OFF)
S 3	QSS1231	Slide Switch (Pause Control)
S 4	QSS1229	Slide Switch (MIC SENS LOW/HIGH)
S 5	QSS2233	Slide Switch (Speed Control ON/OFF)
S 6	QSS1229	Slide Switch (Voice Operation ON/OFF)
JACKS		
J 1	QJA0184	M3 Jack
J 2	refer to G12	Monitor Jack
J 3	QJA0177	DC IN Jack
J 4	QJA0185	M2 Jack

NOTES:

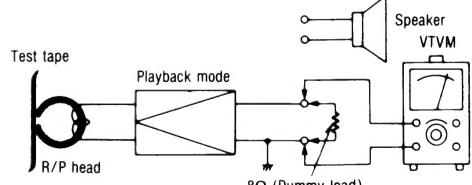
- S1-1—S1-3Record/playback select switch (shown in playback position).
- S2Power ON/OFF switch (shown in OFF position).
- S3Pause control switch (shown in LOCK position).
- S4MIC sens LOW/HIGH switch (shown in HIGH position).
- S5Tape speed control switch (shown in OFF position).
- S6Vox operation switch (shown in ON position).
- VR1Volume control.
- VR2Tape speed control
- VR201Tape speed adjustment VR.
- Resistance are in ohms (Ω), 1/8 watt unless specified otherwise.
- K = 1,000Ω
- Capacity are in microfarads (μF) unless specified otherwise.
- P = Pico-farads.
- Described in the schematic diagram are two types of numbers: the supply parts number and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.

e.g. Q1
2SC2412LN(R,S) — Production parts number
or 2SC2405(S,T)
[2SC2412R] — Supply parts number
D2
1SR35200 — Production parts number
[SM112] — Supply parts number

- The supply parts number is described alone in the replacement parts list.
- This schematic diagram may be modified at any time with the development of new technology.

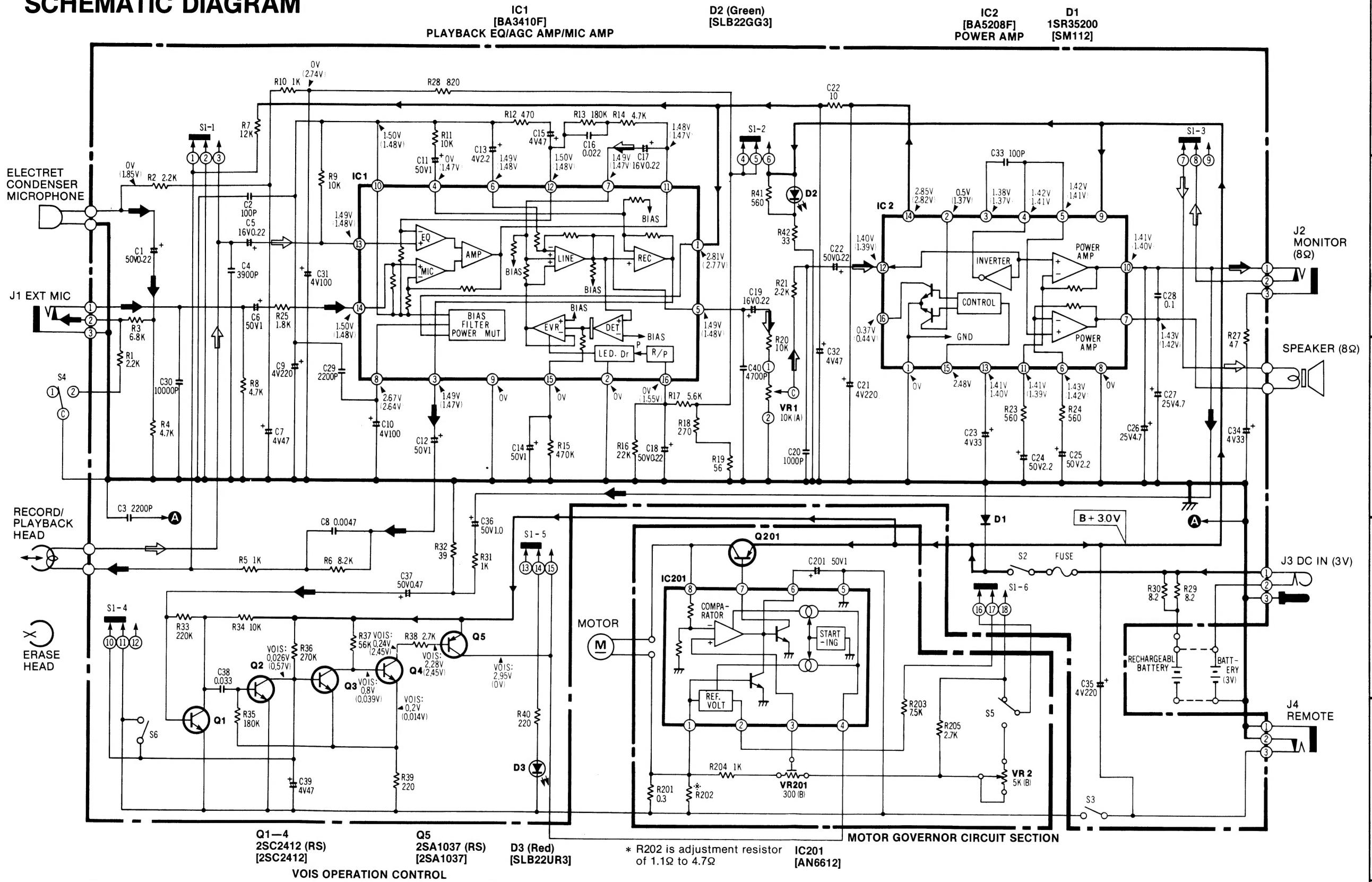
SPECIFICATIONS

Standard recording input level	1kHz: MIC: -72dB±4dB
Overall frequency response	250Hz: -3±5dB 1kHz: 0dB 6kHz: -3±6dB
Playback output level * Use test tape ...QZZCFM (315Hz, 0dB)	More than 1.6V



Notes: 1. Cut the speaker lead wire.
2. Connect 8Ω instead of speaker.

SCHEMATIC DIAGRAM



NOTES:

- All voltage values shown in circuitry are under no signal condition and playback mode with volume control a maximum position.
However, the voltage in record mode is indicated in () when it differs

VOIS. Voltage values at ON (Voice operation switch) mode.

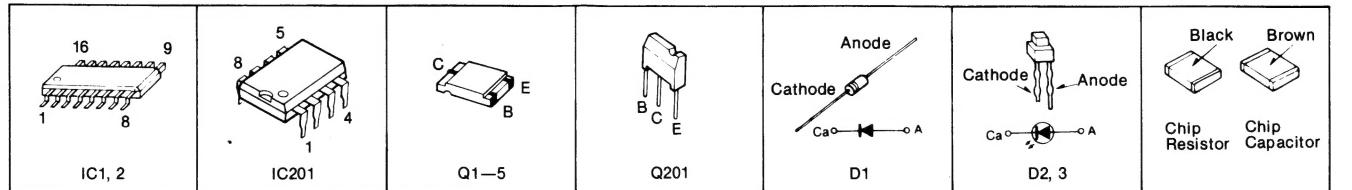
VOIS...Voltage values at ON (Voice operation switch) mode.
For measurement, use VTVM

For measurement, use VIVM

- () this arrow indicates the flow of the playback signal
- () this arrow indicates the flow of the recording signal

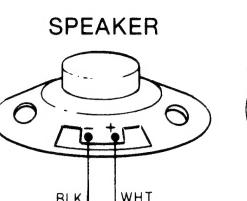
- () this arrow indicates the flow of the recording signal.
- () this arrow indicates the flow of the playback and recording signal in combination.

TERMINATIONS

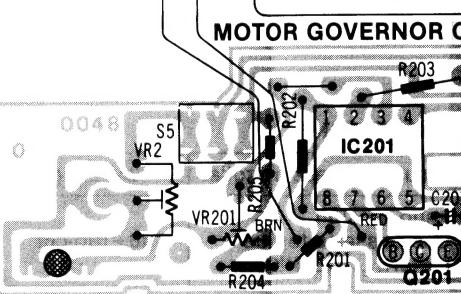
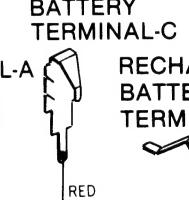
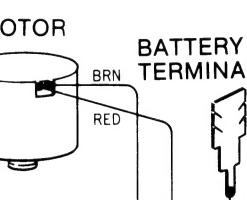


CIRCUIT BOARDS AND

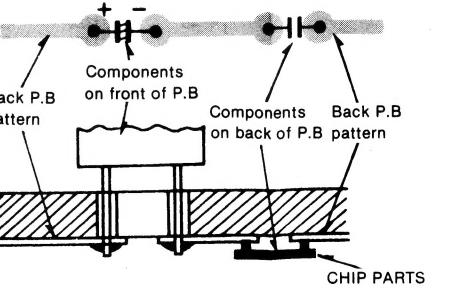
IC 1			
1	2.81V	5	1.49V
2	0V	6	1.49V
3	1.4V	7	1.49V
4	0V	8	2.69V

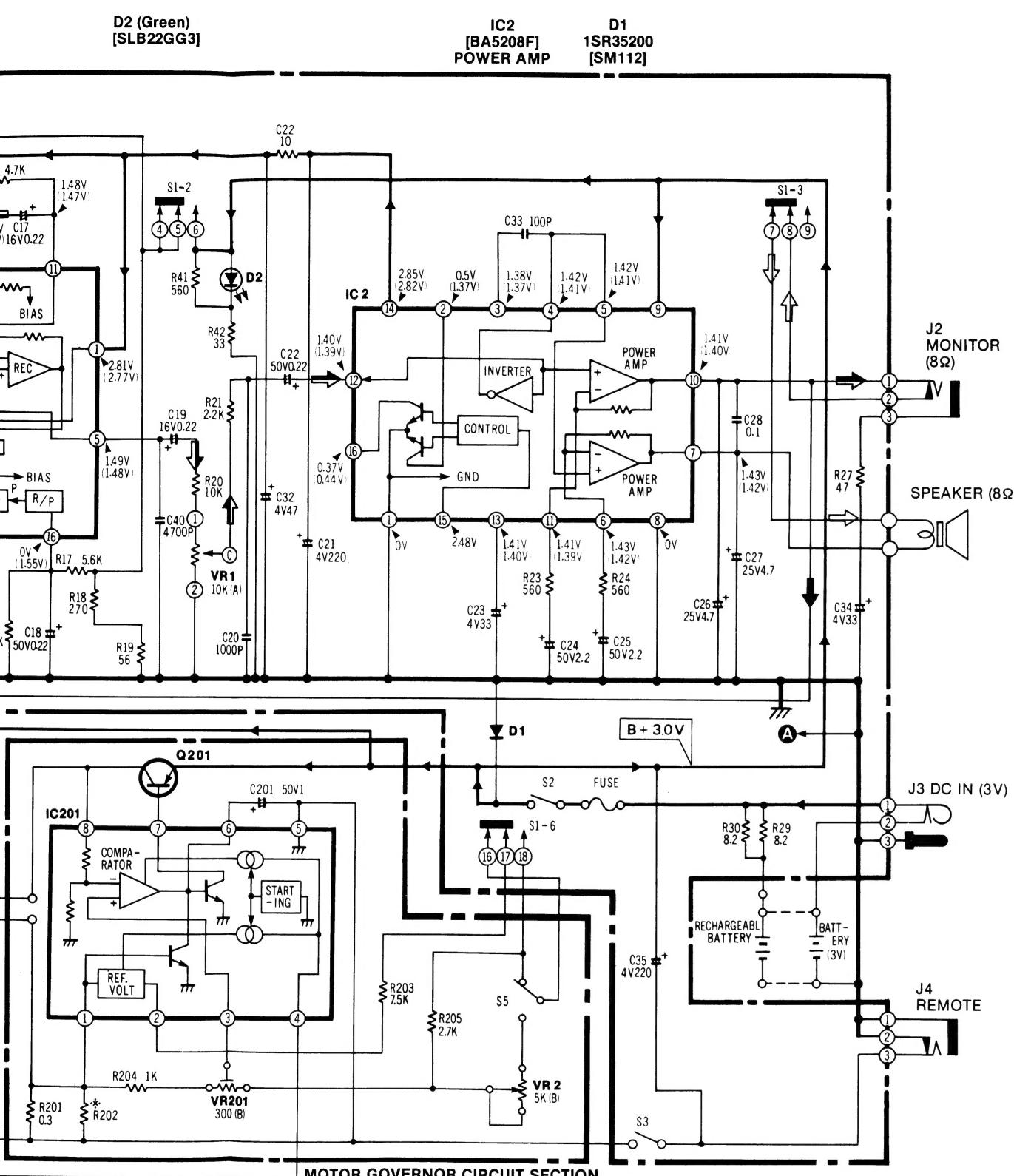


IC2			
1	0V	5	1.42V
2	0.5V	6	1.43V
3	1.38V	7	1.43V
4	1.42V	8	0V



R202 is adjustment resistor of 1.1Ω to 4.7Ω

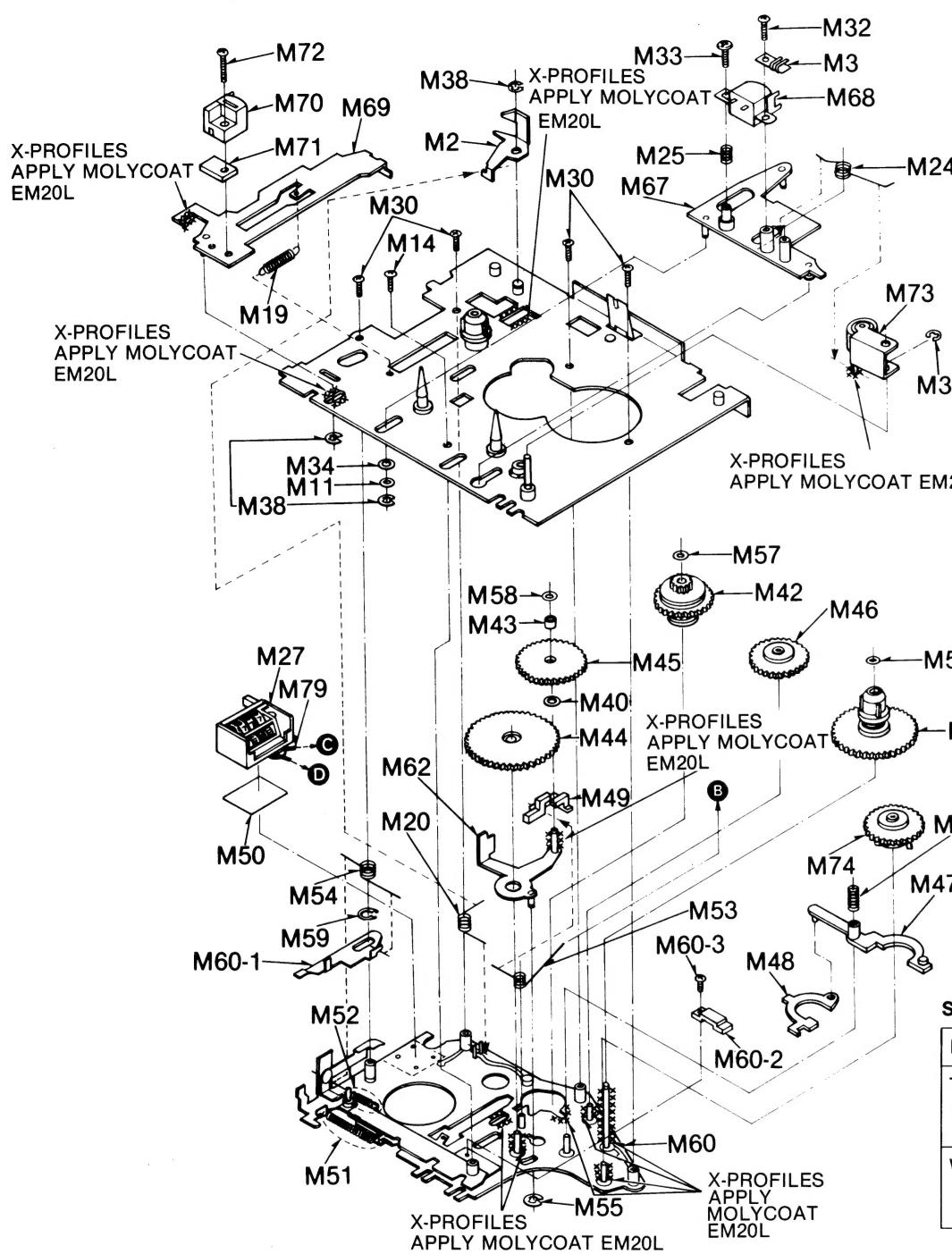




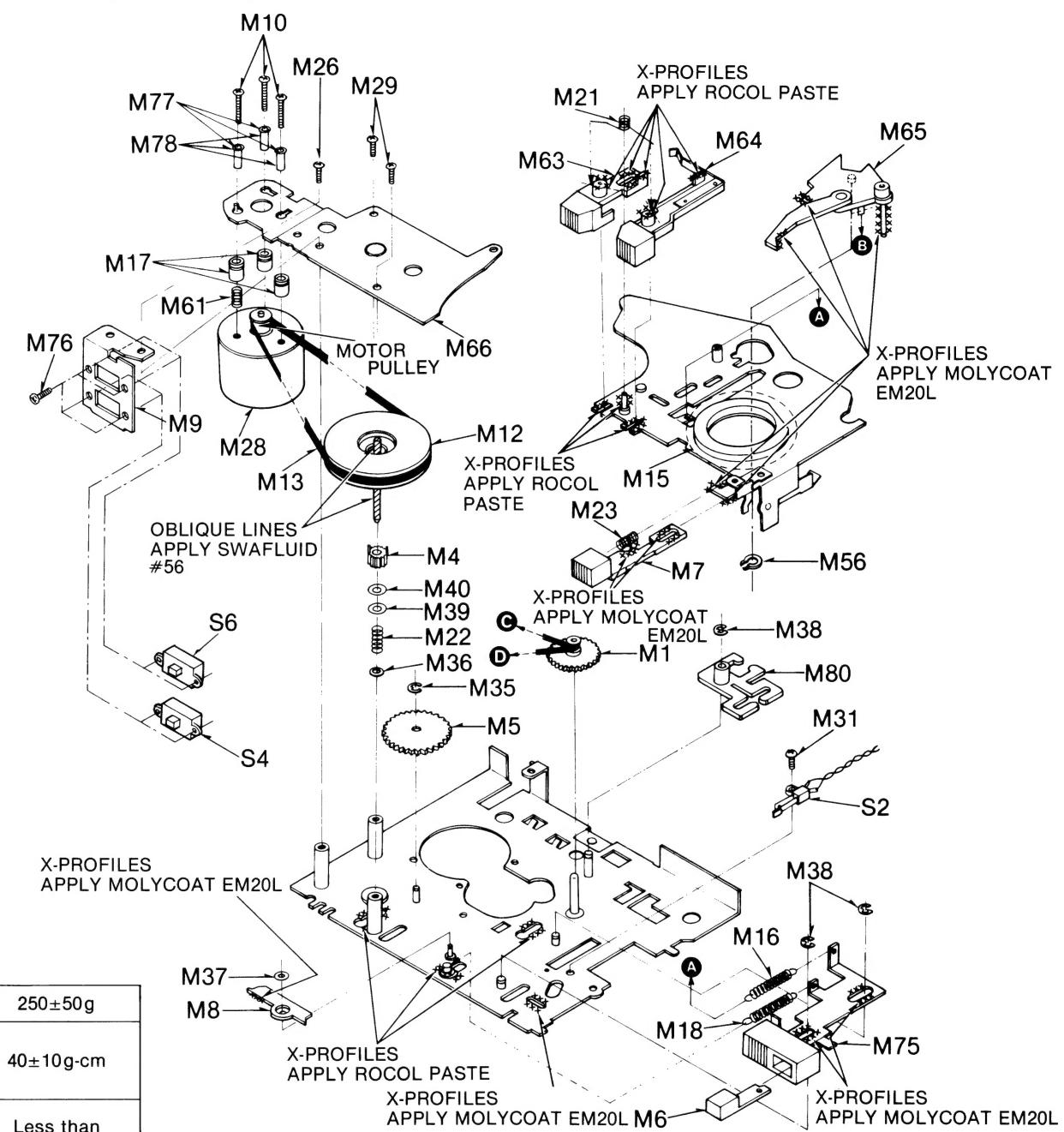
1 2 3 4 5 6 7 8

MECHANICAL PARTS LOCATION

(Front View)



(Rear View)



NOTE:

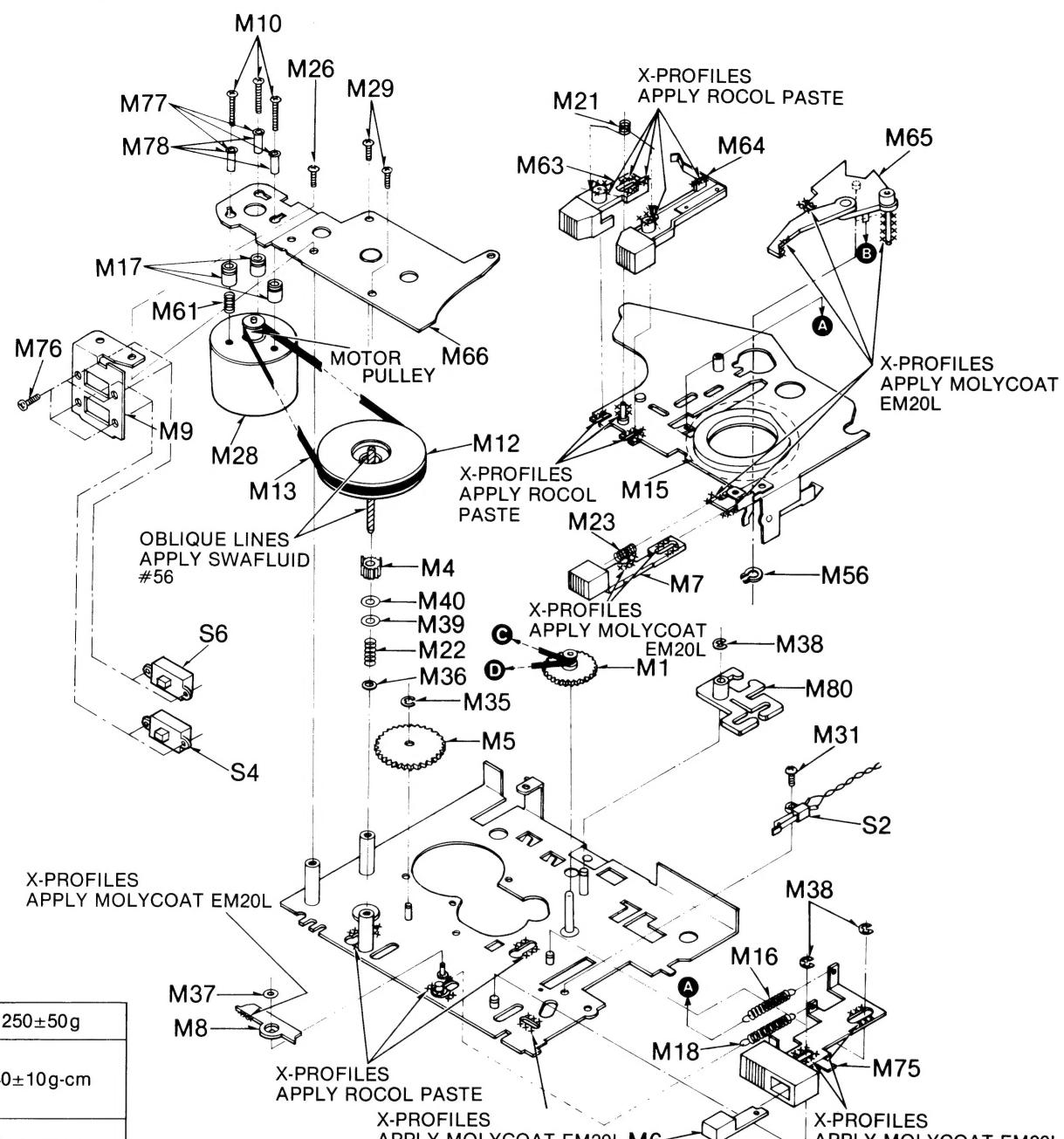
When changing mechanism parts, apply the specified grease to the area marked "xx" shown in the drawing "Mechanical Parts Location".

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS														
M 1	QDP1977	Supply Reel Pulley	M 14	XQN16C25FZ	Screw $\oplus 1.6 \times 2.5$	M 29	XQN16C3FZ	Screw $\oplus 1.6 \times 3$	M 43	QMC0155	Spacer (for Gear-(4))	M 57	QBW2030	Snap Washer
M 2	QML4051	Erase Safety Lever	M 15	QBM0017	Speaker Cushion	M 30	XTNQ16C4D	Screw $\oplus 1.6 \times 4$	M 44	QDG1319	Gear-(3)	M 58	QBW2008	Snap Washer
M 3	QTD1326	Head Wire Clammer	M 16	QBT2104	Playback Rod Spring	M 31	XSN2+3	Screw $\oplus 2 \times 3$	M 45	QDG1320	Gear-(4)	M 59	XUE35	Stop Ring 3.5φ
M 4	QDG1317	Gear-(1)	M 17	QBG1762	Motor Rubber	M 32	XSN2+4	Screw $\oplus 2 \times 4$	M 46	QDG1321	Gear-(5)	M 60	QXK2809	Intermediate Plate
M 5	QDG1318	Gear-(2)	M 18	QBT2015	Head Base Plate Spring	M 33	XSB2D45	Screw $\oplus 2 \times 4.5$	M 47	QML4054	Auto-Stop Lever-A	M 61	QML4060	Auto-Stop Lever-B
M 6	QGO2280	Record Button	M 19	QBT2015	Erase Head Base Plate	M 34	XWE3A7	Washer	M 48	QML4055	Auto-Stop Safety Lever	M 62	QAA0024	Counter Adhesive Angle
M 7	QGO2281S	Stop Button	M 20	QBN2014	Erase Safety Lever Spring	M 35	XUC15FT	Ring 1.5φ	M 63	QML4053	Eject Change Lever	M 63	QBT2013	Lock Plate Spring
M 8	QML4059	Cue Lever	M 21	QBN2016	FF/REW Button Spring	M 36	QBW2102	Washer	M 64	QBT2011	Switch Change Rod	M 64	QBC1475	Spring (for Motor)
M 9	QMA6470	Switch Angle (for S4 and S6)	M 22	QBC1479	Flywheel Spring	M 37	QBW2030	Snap Washer	M 65	QBN2015	Spring	M 65	QX0937	Playback Rod Assembly
M 10	QHQ1358	Screw (for Motor)	M 23	QBC1477	Stop Button Spring	M 38	XUC2FT	Stop Ring 2φ	M 66	QBN2017	FF Lever Spring	M 66	QX0796	Gear Lever Assembly
M 11	QBP1519	Spring Washer	M 24	QBN2013	Pressure Roller Spring	M 39	QBW2013	Washer	M 67	QX0797	FF Lever Assembly	M 67	QX0797	FF Lever Assembly
M 12	QXF0229	Flywheel Assembly	M 25	QBC1339	Head Adjustment Spring	M 40	QBA0006	Washer	M 68	QX0798	REW Button Assembly	M 68	QX0798	REW Button Assembly
M 13	QDB0350	Flywheel Belt	M 26	XQN16C35FZ	Screw $\oplus 1.6 \times 3.5$	M 41	QXD0156	Takeup Reel Table	M 69	QX0799	Lower Plate Assembly	M 69	QX0799	Lower Plate Assembly
									M 70	QXK2813	Record/Playback Head Assembly	M 70	QXK2813	Record/Playback Head Assembly
									M 71	QXK2814	Erase Head Base Plate	M 71	QXK2814	Erase Head Base Plate
									M 72	QXK2815	Intermediate Plate Assembly	M 72	QXK2815	Intermediate Plate Assembly
									M 73	QXK2816	Auto-Stop Lever Guide	M 73	QXK2816	Auto-Stop Lever Guide
									M 74	QXK2817	Eject Change Lever	M 74	QXK2817	Eject Change Lever
									M 75	QXK2818	Lock Plate Spring	M 75	QXK2818	Lock Plate Spring
									M 76	QXK2819	Stop Ring 3.5φ	M 76	QXK2819	Stop Ring 3.5φ
									M 77	QXK2820	Intermediate Plate	M 77	QXK2820	Intermediate Plate
									M 78	QXK2821	Auto-Stop Lever-A	M 78	QXK2821	Auto-Stop Lever-A
									M 79	QXK2822	Auto-Stop Lever-B	M 79	QXK2822	Auto-Stop Lever-B
									M 80	QXK2823	Counter Adhesive Angle	M 80	QXK2823	Counter Adhesive Angle
									M 81	QXK2824	Record Lever	M 81	QXK2824	Record Lever
									M 82	QXK2825	Back Tension Spring	M 82	QXK2825	Back Tension Spring

Ref. No.	Part No.	Part Name
REPLACEMENT PARTS		
G 1	[D] QYMA0204C	[For all European areas]
G 2	[NA] QYMA0206C	[For Asia, Latin America, Australia areas]
G 1-1	QBP2005	
G 1-2	XTN2+6BFZ	
G 2	QYMA0196C	
G 2-1	QJB0161	
G 2-2	QJB0109	
G 2-3	QJB0142	
G 2-4	QJB0147	
G 3	QYP0022	
G 4	QKFA4005C	
G 5	QGO2284S	
G 6	QMN2859	
G 7	XTN2+6B	
G 8	XTN2+8BFZ	
G 9	XQN16+C4FN	
G 10	QYFA0049	
G 10-1	QBH2037H	

(Rear View)

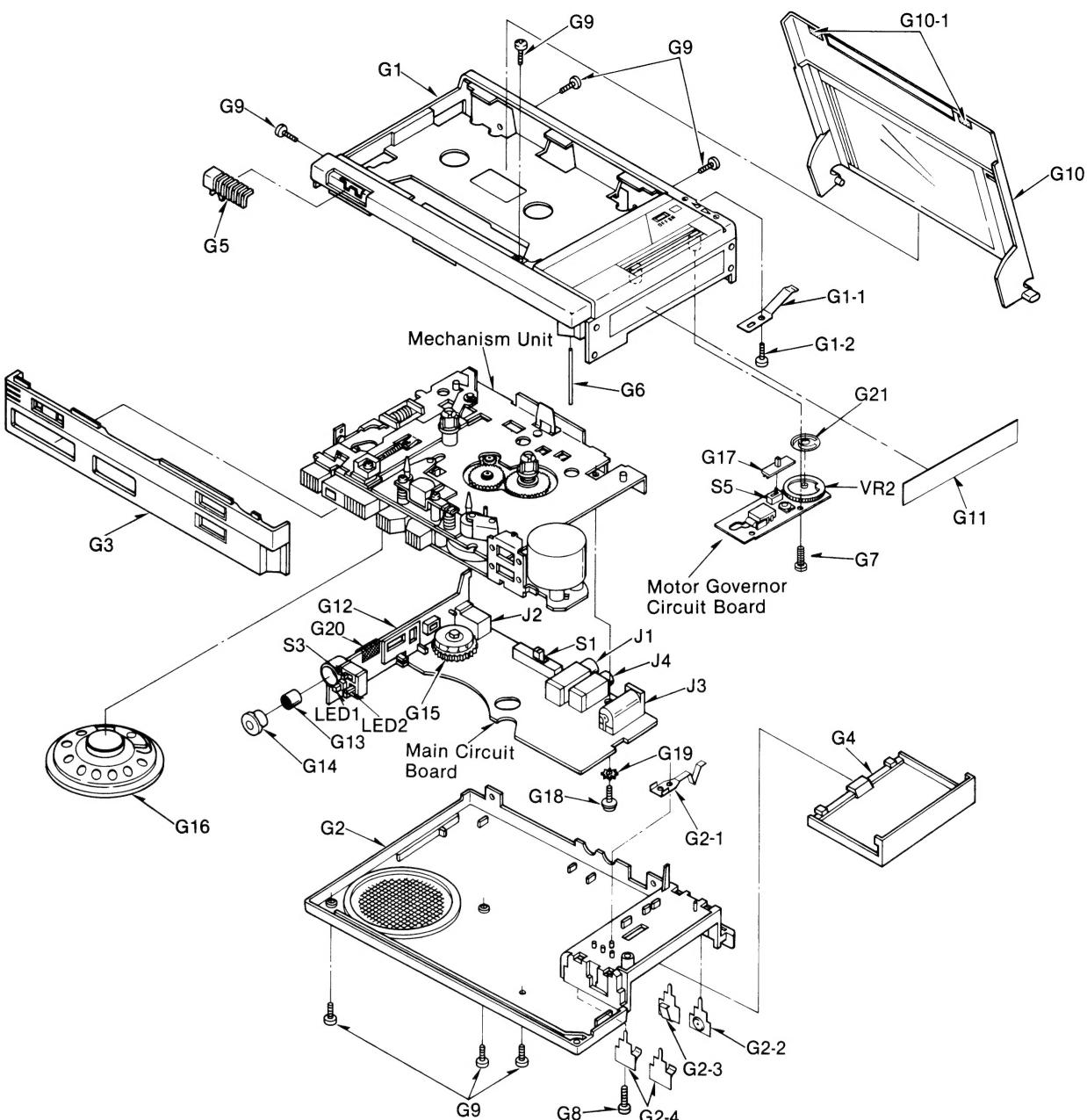


SPECIFICATIONS

Pressure of pressure roller	250±50g
Takeup tension * Use cassette torque meter.....QZZRKCT	40±10g-cm
Wow and flutter: JIS * Use test tapeQZZCWAT	Less than 0.5% (RMS)

Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
Screw $\oplus 1.6 \times 3$	M 43	QMC0155	Spacer (for Gear-4)	M 57	QBW2030	Snap Washer	M 68	QWY0151Y	Record/Playback Head
Screw $\oplus 1.6 \times 4$	M 44	ODG1319	Gear-(3)	M 58	QBW2008	Snap Washer	M 69	QXK2813	Erase Head Base Plate
Screw $\oplus 2 \times 3$	M 45	ODG1320	Gear-(4)	M 59	XUE35	Stop Ring 3.5φ	M 70	QWY2158	Assembly
Screw $\oplus 2 \times 4$	M 46	ODG1321	Gear-(5)	M 60	QXK2809	Intermediate Plate	M 71	QMG0126	Erase Head
Screw $\oplus 2 \times 4.5$	M 47	QML4054	Auto-Stop Lever-A	M 60-1	QML4053	Eject Change Lever	M 72	XSN2+8	Erase Head Base
Washer	M 48	QML4055	Auto-Stop Lever-B	M 60-2	QMG0127	Auto-Stop Lever Guide	M 73	QXL1677	Screw $\oplus 2 \times 8$
Ring 1.5φ	M 49	QML4060	Auto-Stop Safety Lever	M 60-3	XQN16C3FZ	Screw $\oplus 1.6 \times 3$	M 74	QXG1080	Pressure Roller Lever
Washer	M 50	QGAA0024	Counter Adhesive Angle	M 61	QBC1475	Gear Lever Assembly	M 75	QXR0937	Gear-(5) Assembly
Snap Washer	M 51	QBT2013	Lock Plate Spring	M 62	QXL1678	Spring (for Motor)	M 76	XSS2+3	Playback Rod Assembly
Stop Ring 2φ	M 52	QBT2011	Switch Change Rod	M 63	QXB0796	Gear Lever Assembly	M 77	XWE19D5	Screw $\oplus 2 \times 3$
Washer	M 53	QBN2015	Spring	M 64	QXB0797	FF Button Assembly	M 78	QMC0157	Washer (for Motor)
Washer	M 54	QBN2017	Eject Change Lever	M 65	QXL1679	REW Button Assembly	M 79	QDB0352	Motor Collar
Takeup Reel Table	M 55	XUC2FT	Spring	M 66	QXK2814	FF Lever Assembly	M 80	QML4057	Counter Belt
Assembly	M 56	XUBQ2FT	Stop Ring 2φ	M 67	QXK2810	Lower Plate Assembly	M 81	QBC1478	Record Lever
FF Gear Assembly						Head Base Plate	M 82	QBC1474	Back Tension Spring
						Assembly			Auto-Lever-A Spring

CABINET PARTS LOCATION



Service Manual

Mini Cassette

RQ-355

(Brown)

Supplement-1

Voice Activated Mini Cassette Recorder
with Tape Speed Control

This is the Service Manual
for the following areas.

- Z ...For all European areas except United Kingdom.
- X ...For Asia, Latin America, Middle East and Africa areas.
- L ...For Australia.

- Please use this manual together with the service manual for model No. RQ-355 order No. ARD83080273C8-05.

CORRECTION

■ REPLACEMENT PARTS LIST

Please revise the original parts list in the Service Manual RQ-355 to conform to the changes shown herein.

(Original)

Ref. No.	Part No.	Part Name & Description
G12	QEJA0028	Jack Plate Assembly (with J2: Monitor Jack)

(Correction)

Ref. No.	Part No.	Part Name & Description
J2	QJA0196H	Monitor Jack
G12	QEJA0028	Jack Plate Assembly

 **National / Panasonic**

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